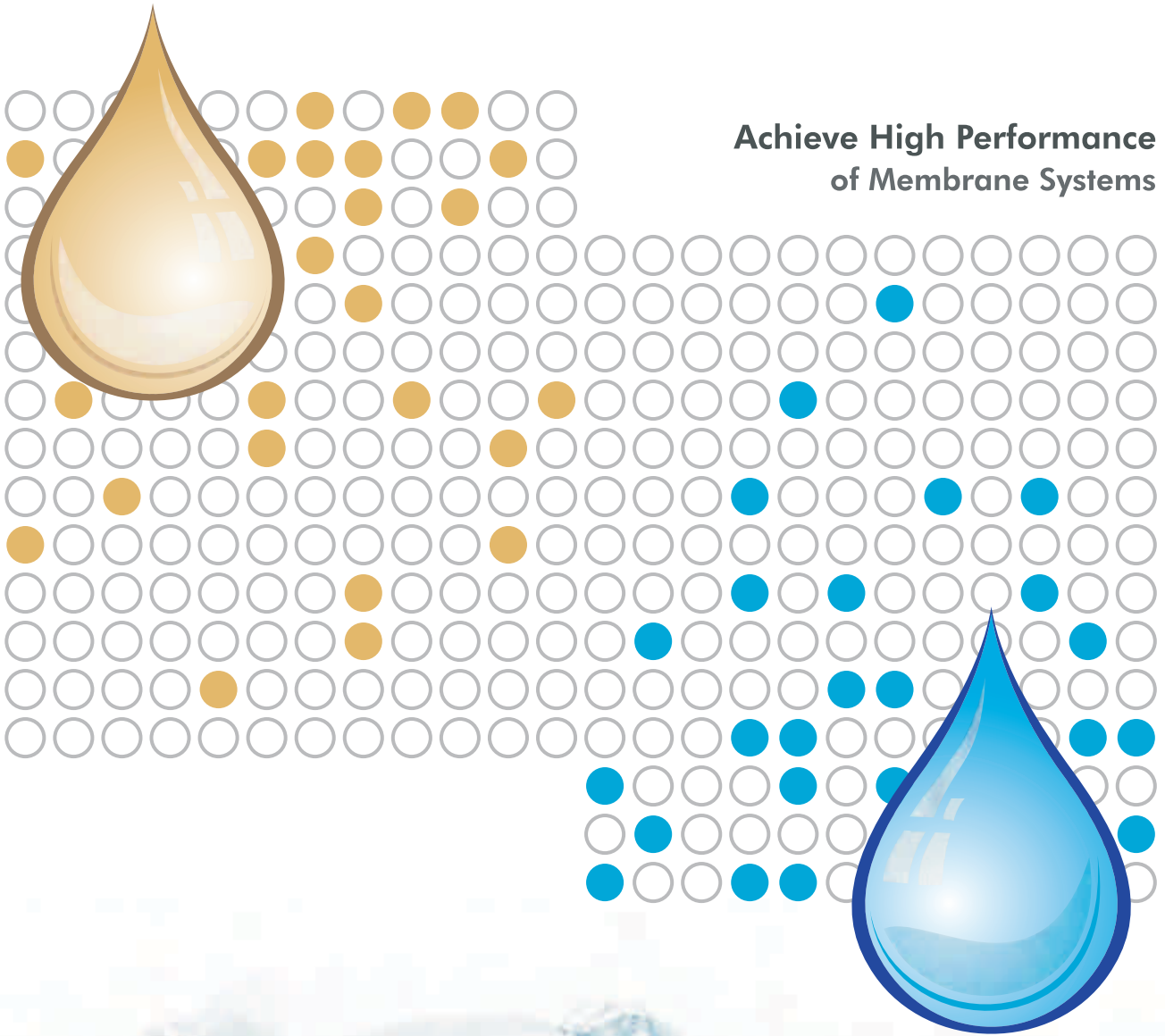


INDION[®]
FILTRATION CHEMICALS



**Achieve High Performance
of Membrane Systems**



INDION® Filtration Chemicals

A versatile and wide product range that helps protect membrane / filtration systems from fouling & scaling during operation or preservation



Ion Exchange (India) Limited is India's leading company in water and environment management, with a strong worldwide presence. Our superior application knowledge and outstanding service support, truly help provide customised, one-stop solutions across diverse industries. Our wide-ranging technologies and best quality products have helped retain our market leadership.

Improving water quality to desired purity levels is a constant challenge faced when developing water treatment technologies. Over the years, the global water industry has seen a significant increase in the use of membranes as a preferred means of ensuring high water quality. Ion Exchange pioneered membrane technology in India and with over four decades of extensive experience ensures successful operation of membrane systems, both locally and internationally.

Through our comprehensive research and development, we have successfully established the INDION filtration chemicals range that enhances membrane system operations.

Due to potential foulants, membranes are prone to fouling which reduces their efficient operation. When filtration chemicals are not used, it is observed that operating costs shoot up due to:

- Reduction of product output
- Unscheduled system shutdowns
- Increase in frequency of membrane replacement

The regular application of INDION filtration chemicals prevents fouling & scaling of membranes, ensuring their high performance and hence, protecting your investment.

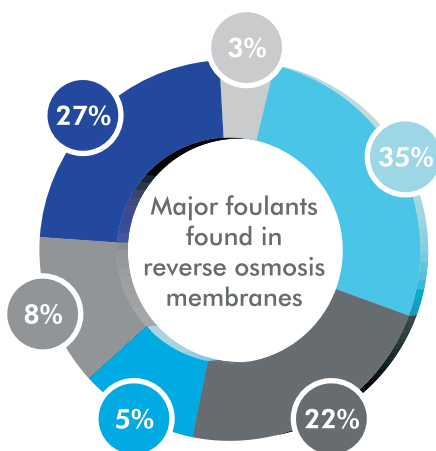
Causes of Membrane Fouling

In order to recommend specific solutions for membrane systems, it is very important to understand the nature and causes of membrane fouling. In normal operation, membrane elements can become fouled by suspended solids, microorganisms and mineral scaling. These deposits build up during operation and cause loss in water output or salt rejection, or both. The nature and tendency of fouling / scaling depends on feed water quality and plant operating conditions. Fouling is progressive and if not controlled will impair membrane performance in a relatively short time. It could also be irreversible.

However, recovery is associated with several factors and lowered output cannot always be linked with fouling. The efficiency of membrane and product quality is often dependent on usage of pretreatment chemicals, thoroughness of membrane cleaning procedures and the effectiveness of system pretreatment.

Common Scales and Foulants

- Carbonates of Calcium and Magnesium
- Sulphates of Calcium, Magnesium, Barium and Strontium
- Silicates (polymeric or reactive) and metal oxides (Iron, Manganese, Copper, Nickel, Aluminium, etc.)
- Inorganic & organic colloidal deposits
- Natural organic materials (NOM) and microbes
- Antiscalants (Calcium Phosphate precipitation) and inorganic cationic polyelectrolytes

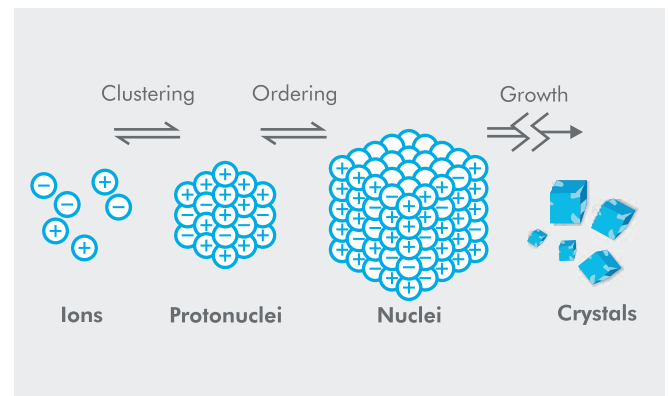


- Aluminium
- Aluminosilicates
- Biofilm
- Calcium Phosphate
- No Deposits Detected
- Organic Matter

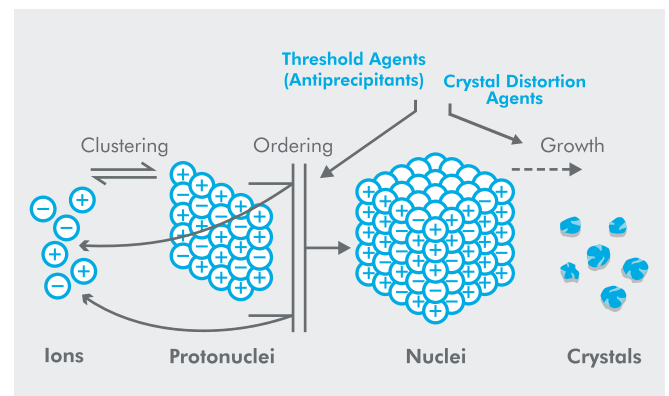
INDION® Filtration Antiscalants:

- A versatile range that provides tailor-made solutions
- Restrict deposition on membranes due to all types of scales & foulants including Calcium Carbonate, Calcium Sulphate, Calcium Phosphate, Silica, Barium, Strontium, colloids, heavy metal oxides and small levels of organics
- ANSI / NSF Standard 60 certified for treatment of drinking water*
- Disperse particulate foulants from membrane surface
- Effective over a wide pH range
- Compatible with most commercially available reverse osmosis membranes
- Work as threshold inhibitors as well as crystal modifiers, hence provide two-tier protection

Calcium carbonate scale without INDION Antiscalant



Calcium carbonate scale in presence of INDION Antiscalant



INDION® Filtration Cleaning Chemicals:

- Wide range of products that provide custom-fit solutions
- Not as harsh on membranes as generic cleaners
- Consist of a high grade formulation suitable for most types of foulants and deposits, unlike generic cleaners which solve one problem but often lead to another
- Are concentrated and hence, efficient for transportation and handling
- Compatible with all types of membrane systems - reverse osmosis, nano filtration, ultra filtration etc

INDION® Filtration Chemicals Range:

Products	Description
INDION 1991	De-chlorinating and membrane preservation chemical
INDION 2811	Acidic reverse osmosis membrane cleaning chemical for inorganic fouling
INDION 2814	Alkaline reverse osmosis membrane cleaning chemical for organic fouling
INDION 2825	Reverse osmosis permeate pH booster
INDION 2826	Reverse osmosis membrane cleaning chemical for bio-fouling
INDION 2840	Reverse osmosis membrane sanitisation and preservation chemical
*INDION 8110	NSF certified reverse osmosis acidic antiscalant for CaCO ₃ , CaSO ₄ and low metal oxides scale inhibition
*INDION 8111	NSF certified reverse osmosis / nanofiltration / electro-dialysis reversal acidic antiscalant for CaCO ₃ , CaSO ₄ , metal oxides and moderate Silica scale inhibition
*INDION 8112	NSF certified reverse osmosis / nanofiltration / electro-dialysis reversal alkaline antiscalant for CaCO ₃ , CaSO ₄ , metal oxides and moderate Silica scale inhibition
INDION 8113	Reverse osmosis / nanofiltration / electro-dialysis reversal acidic antiscalant for CaCO ₃ , CaSO ₄ , metal oxides and high Silica scale inhibition
*INDION 8115	NSF certified reverse osmosis / nanofiltration / electro-dialysis reversal acidic antiscalant for CaCO ₃ , CaSO ₄ , metal oxides and high CaPO ₄ scale inhibition
INDION 8210	Reverse osmosis acidic antiscalant for CaCO ₃ , moderate CaSO ₄ and low metal oxides scale inhibition
INDION 8211	Reverse osmosis acidic antiscalant for moderate CaCO ₃ , CaSO ₄ , Silica and metal oxides scale inhibition
INDION 8212	Reverse osmosis alkaline antiscalant for CaCO ₃ , CaSO ₄ , metal oxides and moderate Silica scale inhibition
INDION 8213	Reverse osmosis acidic antiscalant for CaCO ₃ , CaSO ₄ , metal oxides and high Silica scale inhibition
INDION 8214	Reverse osmosis acidic antiscalant for CaCO ₃ , CaSO ₄ , Silica, metal oxides and high CaPO ₄ scale inhibition
INDION 2345	General purpose, highly effective antiscalant cum antifoulant for multiple effect distillation for top brine temperature up to 80°C
INDION 2350	General purpose, highly effective antiscalant cum antifoulant for multi-stage flash distillation for top brine temperature up to 120°C
INDION 2370	Highly effective antiscalant for multi effect evaporators
INDION 8442	Membrane bio-reactor (MBR) performance enhancing polymer
INDFIX ROCA 19	Organic polymer for controlling silt density index
INDFLOC 27	Powdered anionic flocculant for pretreatment

*NSF certified products are not added directly to potable water but as a pretreatment additive prior to distillation / filtration and approval is subject to certain dosage limits used.

Field Technical Services

Ion Exchange has a reliable and expert service team, who have in-depth application knowledge of membrane systems and chemicals. We are capable of conducting detailed system audits, carrying out periodic reviews of plant performance and providing on-site system troubleshooting & membrane cleaning support .

Laboratory Services

Our laboratory facilities are well equipped to conduct comprehensive membrane autopsies, water and scale analyses and antiscalant projections, which help determine exact dosages.

We also conduct stimulation studies and performance evaluations of an existing treatment to establish optimum treatment solutions.

Related Product Range

- Highly concentrated powder or liquid membrane cleaners for ultra filtration / nano filtration / reverse osmosis
- Coagulants & flocculants
- Wide range of disinfectants



INDION and **INDFLOC** are the registered trademarks of Ion Exchange (India) Ltd.

To the best of our knowledge the information contained in this publication is accurate. Ion Exchange (India) Ltd. maintains a policy of continuous development and reserves the right to amend the information given herein without notice. Please contact our Regional / Branch Offices for current product specifications.

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